

U. S. Department of Energy



Thomas Jefferson National Accelerator Facility

100 Introduction

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- A. The Project Control System Manual describes the process and procedures for implementing an Earned Value Management System on projects conducted at the Jefferson Laboratory. This manual supports the Jefferson Lab mission by facilitating the achievement of project success regardless of project size or complexity. Earned Value Management is an acknowledged management process for the organization, planning, performance measurement, and controlling of projects. A project's technical scope of work is integrated logically with its schedule and budget to form an approved project baseline. Accomplished work and accrued costs during project execution provide essential earned value information to measure performance for comparison to this baseline. Project management gains valuable insight into the health of the project by examining the earned value indicators.
- B. Earned Value Management is a systematic framework to communicate project progress and performance across all levels of the project management team and to the project customer. The Earned Value Management System is more than just a method to report the status of a project. It is a vital management tool that allows project leadership to "manage by exception" and focus on the critical issues of a project. The earned value indicators provide quantifiable project data for identifying, analyzing, understanding, and resolving problems. The project management team can be proactive in engaging potential problems before they have a major impact to the project and thus prevent surprises that cost the project time and money.
- C. The Project Control System Manual is organized along the Earned Value Management Systems guidelines established in the American National Standards Institute (ANSI)/Electronic Industries Alliance (EIA) Standard-748-A-1998. This project management standard defines 32 "best practice" criteria for implementing the Earned Value Management process. By implementing the Earned Value Management process and procedures documented in this manual, the project management team can:
- establish a standard approach to organizing the various elements of a project.
 - facilitate the formation of a comprehensive time-phased budget by thorough schedule planning and cost estimating.
 - control project activity flow by defining how work is formally authorized.
 - capture actual costs on the project via the Lab accounting system.
 - determine specific work progress on the project at a detail level.
 - perform variance analysis on the resultant earned value data to measure performance against the approved project baseline.

- establish a consistent process for controlling changes to the project baseline.
- D. Successful implementation of the Earned Value Management System at Jefferson Lab will result in numerous benefits to the organization and to the project management team.
- Detailed planning at the beginning of a project often addresses problems that may surface later in the effort, preventing schedule slips, increased costs, and/or technical rework. Project leaders can easily identify problem areas and pin down the specific sources of the problems with detailed planning.
 - Better visibility into the performance of the project is gained due to the integrated method of extensive planning, earned value analysis, and baseline control.
 - Project accountability is fostered and overall project quality is enhanced by the identification of a responsible person/organization at each work level.
 - Project risk reduction is enhanced by the availability of earned value metrics allowing project management to mitigate impacts by making early adjustments to the project. Accurate estimates of schedule completion and projected final costs can be produced.
 - A single, integrated management control system provides reliable data for analysis. Integrity of the project performance data will be enhanced and informed decisions can be made based on objective data collected by the project.
 - The level of information overload experienced can be reduced by employing the principle of “management by exception.”
- E. The guidelines and procedures described in the Project Control System Manual are not directive in nature, but represent the standard approach to controlling projects undertaken at the Jefferson Lab. Certain customers (e.g., Department of Energy) will require the implementation of an Earned Value Management System based on the dollar threshold of the project’s anticipated cost. Other projects are highly encouraged to avail themselves of the tools and processes highlighted in this manual to establish a proactive project management environment. Depending on the size, complexity and risk of the project, the processes can be tailored to best facilitate the successful achievement of the project goals. Projects with low complexity and risk factors may not require the same level of insight, management and control associated with a more complex project requiring significant planning and resources. Implementation of the processes described in the Project Control System Manual should be addressed specifically in all Project Execution

Plans. All plans should identify those Earned Value Management elements deemed not applicable and provide a rationale for their exclusion.

101 Roles and Responsibilities

The following roles are the key management elements responsible for implementing the processes delineated in the Project Control System Manual.

- **Project Customer**
The ultimate stakeholder with a vested interest in the positive outcome of the project. Responsible for project funding and the establishment of project requirements.
- **Project Director/Manager**
The senior leader of the project management team. (Title may be Project Director or Project Manager depending on project size and project customer, or a project may have both positions.) Responsible for all aspects of project control from planning and budgeting to analysis and reporting.
- **Associate Project Manager**
The next level down from the Project Director/Manager. There may be multiple Associate Project Managers with responsibility for managing top-level system elements of the project.
- **Cost Account Manager**
The key person responsible at the detail level of project planning and execution. Manages one or more Cost Accounts representing the lowest level where project performance is measured.
- **Director, Office of Project Management (OPM)**
The Director and the OPM staff are responsible for the Project Control System Manual and the implementation of the Earned Value Management System process at Jefferson Lab. Under the Director are the Project Services Manager and the OPM Financial Manager who provide project and financial support to the project management team in applying the processes documented in the Project Control System Manual.
- **Chief Financial Office**
Responsible for the financial system where accounting for project costs occurs.

102 References

The following documents were used as guidance in the development of the Project Control System Manual.

- DOE Manual 413.3-1, *Project Management for the Acquisition of Capital Assets* (3-28-03)
- DOE *Earned Value Management Application Guide*, Version 1.6 (January 1, 2005)
- DOE *Work Breakdown Structure Project Management Practices* (Rev E, June 2003)
- DOE *Scheduling and Cost Estimating Project Management Practices* (Rev E, June 2003)
- DOE *Performance Baseline Development and Validation Project Management Practices* (Rev E, June 2003)
- American National Standards Institute (ANSI)/Electronic Industries Alliance (EIA) Standard - 748-A-1998, *Earned Value Management Systems (EVMS)* approved May 19, 1998, reaffirmed August 28, 2002
- Project Management Institute *Practice Standard of Earned Value Management* (2005)
- National Defense Industrial Association *ANSI/EIA-748-A Standard for Earned Value Management Systems Intent Guide* (January 2005 Edition)
- National Defense Industrial Association *Surveillance Guide* (October 2004 Edition)

103 Revision of the Project Control System Manual

The Project Control System Manual is maintained by the Jefferson Lab Office of Project Management. Questions, comments, and suggested revisions concerning this manual can be addressed to the OPM staff. The Office of Project Management will review the Project Control System Manual annually to assess the need for revisions to this document. Proposed changes to the manual will be evaluated for impacts to the Earned Value Management process that could potentially affect system certification. All revisions will be approved by the Director, Office of Project Management. Approved revisions to the Project Control System Manual will be annotated in the Document Revision Log.